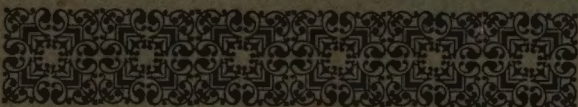


P. L. CLIMO



THE  
**Parker-Russell**  
Mining and Manufacturing Co.  
*Refractories of Endurance*



MANUFACTURERS  
ENGINEERS  
CONTRACTORS

General Offices and Factories:  
MORGANFORD ROAD and PARKER AVE.  
ST. LOUIS, MO.

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PRESERVATION TECHNOLOGY,  
INTERNATIONAL

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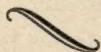
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CATALOG  
CONTAINING VALUABLE INFOR-  
MATION IN CONNECTION  
WITH THE USE OF

*Parker-Russell*  
**HIGH-GRADE  
REFRACTORIES**

MANUFACTURERS  
ENGINEERS  
CONTRACTORS



THE PARKER-RUSSELL MINING  
AND MANUFACTURING CO.

Morganford Road and Parker Ave.

ST. LOUIS, MO.



THE Parker-Russell Mining & Manufacturing Co. began in the year of 1866 the manufacture of Fire Clay Products. In this year a small factory was erected in the Oak Hill District of St. Louis. Through rigid maintenance of high standards of quality and service, the business has grown to be one of the largest manufacturers of quality refractories in the country. Our plants now occupy a full eleven acres around the old St. Louis site.

By owning three mines and valuable leases of clay lands and operating our own mines we control the quality of raw materials used in our product and have a guarantee of an adequate supply of raw materials for future use.

Our methods of manufacturing produce refractories of the highest order. Our plants are equipped for quality production, quantity being a secondary consideration.

Our line of refractories is complete and comprises materials for practically every industrial need.

Our principal brands are PARCO, PARK-RUS, PARKER-RUSSELL SPECIAL, P. R. CHECKERS, THREE STAR (★★★), XXX and No. 1 in fire clay and P. R. in SILICA. In recommending materials for specific industrial equipment, we advise the use of a refractory product which we know possesses

"PARCO" FOR HIGHEST TEMPERATURES

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the endurance necessary for the work it must perform.

A partial list of products we manufacture include:

- Bake Oven Tile.
- Blast Furnace Linings.
- Blast Furnace Stove Brick.
- Boiler Settings.
- Brass Furnace Linings.
- Bronze Furnace Linings.
- By-Product Coke Oven Shapes.
- Checker Brick.
- Cupola Lining Brick.
- Cement for Patching Furnaces.
- Crematory Linings.
- Dobies.
- Fire Brick.
- Fire Clay.
- Fire Proofing.
- Gas Retorts.
- Gas Bench Settings.
- Gas Producer Linings.
- Heat Treating Furnace Linings.
- Kiln Floor Tile
- Lime Kiln Lining Blocks.
- Locomotive Tile.
- Muffle Tiles.

## "PARCO" FOR ABRASIVE ACTION

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Oil Refining Refractories.  
Parco Products.  
Parco High Temperature Cements.  
Retorts.  
Roasting Furnace Blocks.  
Rotary Cement Kiln Linings.  
Recuperator Tile.  
Sleeves.  
Square Edge Tile.  
Stoker Arch Tile.  
Scurfing Tile.  
Special Makes of all Descriptions.  
Silica Brick.  
Silica Sectional Retorts.  
Water Gas Machine Linings.  
Zinc Furnace Tile.

In addition to the above we specialize in complicated and unusual shapes. Our plant is equipped for the proper handling of such shapes and our reputation for quality production in the particular class of materials is well known throughout the country.

We carry at all times complete stocks of standard squares and shapes as well as stocks of settings and retorts for coal gas benches and linings for water-gas sets.



## ENGINEERING AND CONSTRUCTION DEPARTMENT

In connection with our business of mining fire clays and manufacturing high grade refractories, the Parker-Russell Mining and Mfg. Company is conducting a highly specialized Engineering and Construction Department. We design and erect complete coal carbonizing plants of any capacity and are one of the oldest and most prominent concerns in this industry.

As builders of modern enameling furnaces of both the muffle and intermittent type for all fuels, the Parker-Russell Mining and Mfg. Company is a recognized leader. Many valuable patents pertaining to industrial furnaces are owned and controlled by this company.

Our organization includes an experienced engineering staff, also a crew of mechanics and fire brick masons, specializing in furnace construction.

We handle all contracts complete from start to finish in an efficient manner and guarantee all work to be high grade throughout.

Almost the entire field of industrial furnaces comes within the scope of our engineering and construction department, and requests for estimates on furnaces, special designs, etc., will have our careful attention, and we solicit the opportunity of quoting on your requirements.

SOLE AGENTS FOR

*"Congdon Scrubber Standpipe System"*  
*"Fiddes Aldridge" Simultaneous*  
*Discharging-Charging Machines.*  
*"Hahn Patented Enameling Furnaces"*

## GUARANTEES

No performance guarantee of any kind is made in the sale of refractories.

In the execution of orders for our products we undertake to furnish material which in our judgment is best suited for the purpose for which it is purchased.

Having thus met the full sense of the obligation to the industries we serve, and having no control over the use of our product after same is placed in service, we feel that there is a similar obligation on the part of the purchaser to seek and select the material which will give him the best results and to exercise extreme care and discretion in the use of the material which he receives.

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## DEVIATIONS

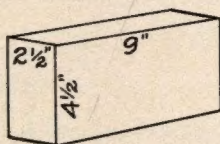
Variations (plus or minus) of 2% from specified dimensions, covering both shrinkage and warpage, on dimensions of 4" or over.

On dimensions under 4", the allowed variations covering shrinkage and warpage will be 3%.

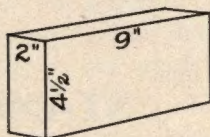


**STANDARDIZED  
CLAY  
FIRE BRICK  
SHAPES**

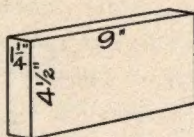
9" STRAIGHT  
9" x 4½" x 2½"



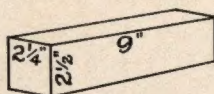
2" BRICK  
9" x 4½" x 2"



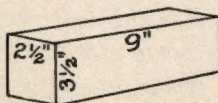
SPLIT BRICK  
9" x 4½" x 1¼"



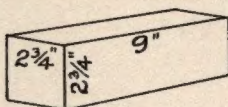
SOAP  
9" x 2½" x 2¼"



SMALL 9" BRICK  
9" x 3½" x 2½"



CHECKER  
9" x 2¾" x 2¾"



## "PARCO" SUPER-REFRACTORY

"PARCO" is manufactured from a specially selected high-grade mineral and other ingredients and has a fusion point in excess of 3400° F.

"PARCO" has remarkable refractory qualities which makes it the ideal material for hot or burning zones of rotary kilns, lime kilns, generators of water-gas machines, muffle furnaces, high pressure boiler settings and various other types of furnaces.

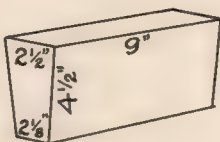
"PARCO" has a very high alumina content, which is in part responsible for the exceptionally good service it gives.

"PARCO" is unusually hard burned, successfully withstands the most severe abrasive conditions and its ability to withstand the penetration of slag and clinker is remarkable. "PARCO" is practically a neutral material, having a minimum of expansion and contraction under heat. "PARCO" products are all handmade and can be furnished in any desired shape or form.

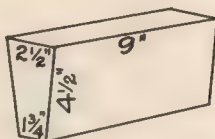
Full particulars regarding this Super-refractory for use in any industry will be gladly furnished on request.



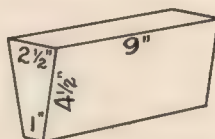
No. 1 ARCH  
 $9" \times 4\frac{1}{2}" \times (2\frac{1}{2}" - 2\frac{1}{8}")$



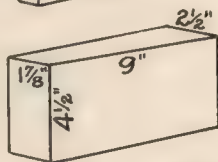
No. 2 ARCH  
 $9" \times 4\frac{1}{2}" \times (2\frac{1}{2}" - 1\frac{3}{4}")$



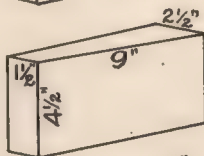
No. 3 ARCH  
 $9" \times 4\frac{1}{2}" \times (2\frac{1}{2}" - 1")$



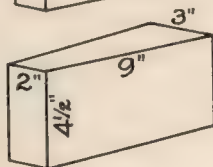
No. 1 WEDGE  
 $9" \times 4\frac{1}{2}" \times (2\frac{1}{2}" - 1\frac{7}{8}")$



No. 2 WEDGE  
 $9" \times 4\frac{1}{2}" \times (2\frac{1}{2}" - 1\frac{1}{2}")$



No. 3 WEDGE  
 $9" \times 4\frac{1}{2}" \times (3" - 2")$



## **"PARKRUS"**

"PARKRUS" materials are of a high aluminous composition and are of the best selected high-grade clays that come from the Missouri District. They are particularly adapted for stoker boiler arches, lime kilns, hot or burning zones of rotary kilns, oil-fired furnaces, brass-melting furnaces and for high-pressure boiler settings.

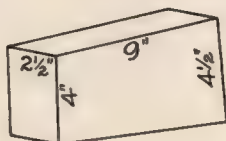
"PARKRUS" has a minimum of expansion and contraction. "PARKRUS" products are handmade and can be furnished in any shape or form desired. They are recommended for use in furnaces that are operated at high temperatures. This brick has a fusion point of about 3400° F.

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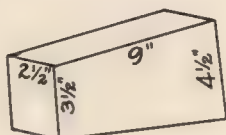
## **"PARKER-RUSSELL SPECIAL"**

"PARKER-RUSSELL SPECIAL" materials are made from practically the same high-grade clays that are used for manufacturing "PARCO" and "PARKRUS" materials and is very similar to those products. They are recommended for the same purposes as "PARCO" and "PARKRUS." "PARKER-RUSSELL SPECIAL" brick will have a fusion point of about 3300° F. This material can also be furnished in any desired shape or form.

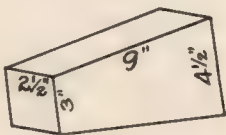
No. 1 KEY  
 $9" \times (4\frac{1}{2}" - 4") \times 2\frac{1}{2}"$



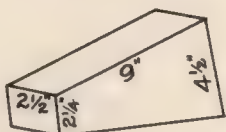
No. 2 KEY  
 $9" \times (4\frac{1}{2}" - 3\frac{1}{2}") \times 2\frac{1}{2}"$



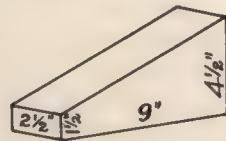
No. 3 KEY  
 $9" \times (4\frac{1}{2}" - 3") \times 2\frac{1}{2}"$



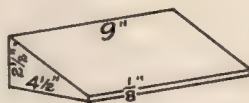
No. 4 KEY  
 $9" \times (4\frac{1}{2}" - 2\frac{1}{4}") \times 2\frac{1}{2}"$



EDGE SKEW  
 $9" \times (4\frac{1}{2}" - 1\frac{1}{2}") \times 2\frac{1}{2}"$



FEATHER EDGE  
 $9" \times 4\frac{1}{2}" \times (2\frac{1}{2}" - \frac{1}{8}")$





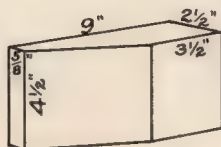
### Three Star (★★★)

Three Star (★★★) brick have a fusion point of 3290° F. These brick are manufactured from high-grade selected Missouri flint and bonding clays. They are particularly adapted for use in rolling mills, steel works, blast furnaces, smelting furnaces, heat-treating furnaces, boiler settings, lime kilns, rotary kilns and especially for oil-burning furnaces and for all work requiring a brick that will carry a load at high temperatures.

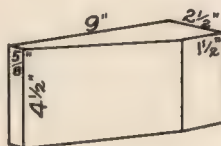
Three Star (★★★) brick are especially adaptable where abrasion and spalling conditions exist in service. They are manufactured by hand and machine-pressed methods.

Three Star (★★★) brick can be furnished in any shape or form desired.

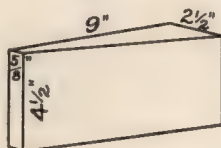
**No. 1 NECK**  
 $9" \times 4\frac{1}{2}" \times 3\frac{1}{2}" \times 2\frac{1}{2}" \times \frac{5}{8}"$



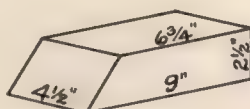
**No. 2 NECK**  
 $9" \times 4\frac{1}{2}" \times 2\frac{1}{2}" \times 1\frac{1}{2}" \times \frac{5}{8}"$



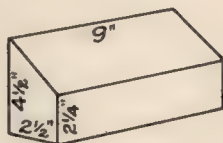
**No. 3 NECK**  
 $9" \times 4\frac{1}{2}" \times (2\frac{1}{2}" - \frac{5}{8}")$



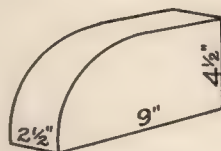
**END SKEW**  
 $(9" - 6\frac{3}{4}") \times 4\frac{1}{2}" \times 2\frac{1}{2}"$



**SIDE SKEW**  
 $9" \times (4\frac{1}{2}" - 2\frac{1}{4}") \times 2\frac{1}{2}"$



**JAMB BRICK**  
 $9" \times 4\frac{1}{2}" \times 2\frac{1}{2}"$



### X X X BRICK

This brick is made from selected Missouri Clays. X X X are a high-grade brick having a fusion point of 3100° F. X X X analysis are somewhat similar to that of the No. 1 brick, although they are higher quality, containing more calcined clay, therefore, having a minimum shrinkage.

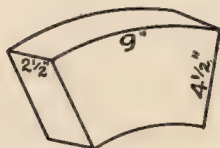
X X X brick are hardburned and give very good results for general work in furnaces, especially in places where a shrinkage of the brick interferes with efficient results.

### No. 1 BRICK

This brick is made from silicious clays coming from the Missouri District. These brick are produced both by hand and machine pressed methods. They are burned hard in manufacture and have a fusion point of 3000° F.

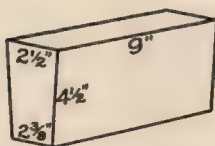
No. 1 Brick are used for general work such as low pressure boiler settings, hot stoves, furnace linings, lime kilns, bake ovens, cupolas, brick kilns, oil stills and the outer walls of all types of high heat furnaces.





## CIRCLE BRICK

NAME	DIAMETER		NO. OF BRICK TO A CIRCLE
	INSIDE	OUTSIDE	
24" CIRCLE	24"	33"	12
36" "	36"	45"	16
48" "	48"	57"	20
60" "	60"	69"	24
72" "	72"	81"	28
84" "	84"	93"	32



## BUNG ARCH

9" x 4 1/2" x (2 1/2" - 2 3/8")

## SILICA

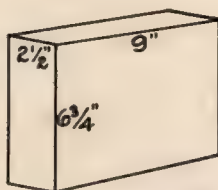
"Parker-Russell" Silica Brick are made from Silica, analyzing over 96% pure. They are perfectly bonded, of excellent appearance and nearly white in color. The test of our Silica Brick as made by the Mellon Institute of Industrial Research, Pittsburgh, Pa., shows they have a very low co-efficient of expansion. The load test shows no vitrification, spalling or other signs of failure when tested to 25 lbs. per square inch at 1500° C.

Our Silica is particularly adapted for coke ovens, coal gas benches, open hearth furnaces, smelters, reverbatory furnaces, glass melting tanks and for all work where it is necessary to have high-grade Silica. They are burned at an exceedingly high temperature in manufacture and have a fusion point in excess of 3200° F. We can furnish Silica material in any desired shape or form.

See Page 48 for photograph  
of typical Silica shapes.

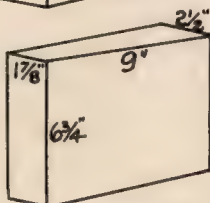
# LARGE 9"

9"x6 $\frac{3}{4}$ "x2 $\frac{1}{2}$ "



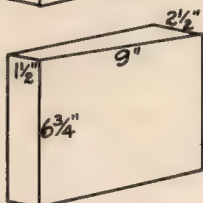
# LARGE 9" No. 1 WEDGE

9"x6 $\frac{3}{4}$ "x(2 $\frac{1}{2}$ "-1 $\frac{7}{8}$ ")



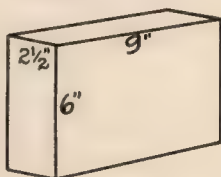
# LARGE 9" No. 2 WEDGE

9"x6 $\frac{3}{4}$ "x(2 $\frac{1}{2}$ "-1 $\frac{1}{2}$ ")



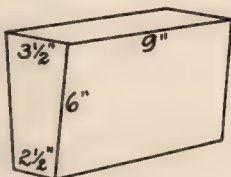
# FLAT BACK STRAIGHT

9"x6"x2 $\frac{1}{2}$ "



# No. 1 FLAT BACK ARCH

9"x6"x(3 $\frac{1}{2}$ "-2 $\frac{1}{2}$ ")



# No. 2 FLAT BACK ARCH

9"x6"x(3 $\frac{1}{2}$ "-2")



## FOR STEAM POWER PLANTS

In high pressure boilers that are operated continually above normal rating, something superior to the ordinary first quality fire brick is necessary to insure long life and lower maintenance costs. We furnish our "Parco" Super-Refractory, "Parkrus" and "Parker-Russell Special" brands for use in such installations, especially along the slag line, in the arches over the stoker, and in the bridge walls where the most severe conditions are encountered.

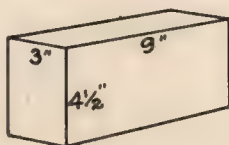
These grades have exceedingly high fusion points, and are especially adapted for lining of boiler furnaces in which sawdust and scrap wood are used as fuel. These materials have exceptional resistance to the penetration of slag and clinker, are well bonded and will not spall readily.

These brands are all very hard burned, are uniform as to size and quality, and are capable of withstanding severe abrasion.

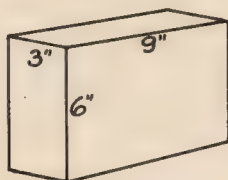
For ordinary conditions, our Three Star (★★★) quality material is very satisfactory. Three Star (★★★) is made of a composition to withstand changes of temperatures, high heats, spalling and abrasive conditions, and is especially suited for oil-fired furnaces.

In order to obtain the very best results, we always suggest the use of our "Parco" High Temperature Mortar in laying all fire brick.

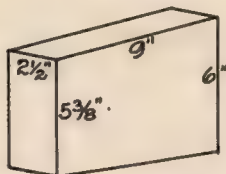
9"x4½"x3" STRAIGHT



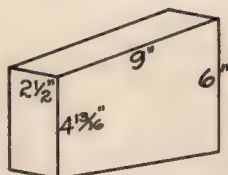
9"x6"x2½" STRAIGHT  
ALSO  
9"x6"x3"



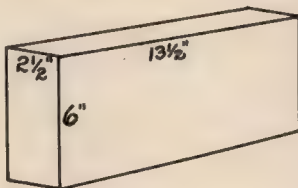
9"x6" No. 1 KEY  
9"x(6"-5⅜")x2½"  
ALSO  
9"x(6"-5⅜")x3"



9"x6" No. 2 KEY  
9"x(6"-4⅜")x2½"  
ALSO  
9"x(6"-4⅜")x3"



13½" STRAIGHT  
13½"x6"x2½"  
ALSO  
13½"x6"x3"



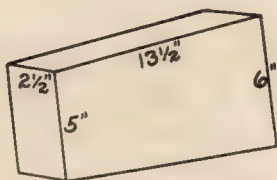
## FOR LIME KILNS

After having furnished materials for lining both shaft and rotary lime kilns for a number of years, and carefully watching the material from a service standpoint, we have developed our "Parker-Russell Special" material for this class of service.

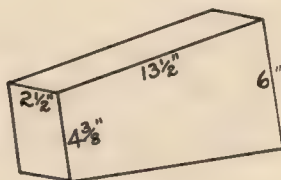
"Parker - Russell Special" material is classed as a high alumina brick. Its construction makes it practically immune from penetration of lime during the burning period. In the shaft kilns it has proven successful in the hot zone, especially in the arches over the eyes because of its ability to withstand the most severe conditions under load.

"Parker-Russell Special" arches in shaft kilns, which in most cases are the weakest point, stand up for the life of the lining. "Parker-Russell Special" has a fusion point of about 3300° F., which adds length to the life of the lining because it is a much higher temperature than at which the lime is burned. Three Star (★★★) brick are also adapted for use in lime kilns and are giving excellent service. Three Star (★★★) brick has a fusion point of about 3290° F.

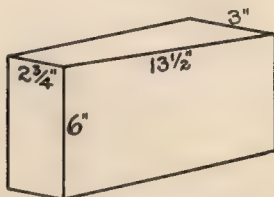
13½" No. 1 KEY  
 13½" x (6"-5") x 2½"  
 ALSO  
 13½" x (6"-5") x 3"



13½" No. 2 KEY  
 13½" x (6"-4¾") x 2½"  
 ALSO  
 13½" x (6"-4¾") x 3"

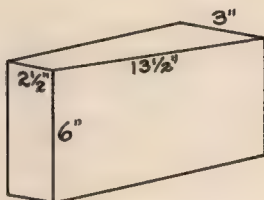


13½" No. 1 WEDGE  
 13½" x 6" x (3"-2¾")



13½" No. 2 WEDGE  
 13½" x 6" x (3"-2½")

13½" No. 3 WEDGE  
 13½" x 6" x (3"-2")



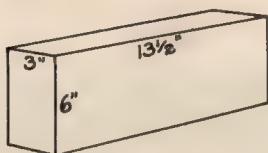




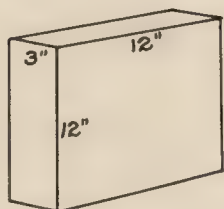
*Typical Water Gas Shapes*

1. "Parco" Generator Lining Block. 2. Special "Gas Checker" Brick. 3. Sleeve. 4. Sleeve. 5. "Parco" Lintel. 6, 7. Connection Tile. 8. Stein's Patented Streamline Checker Brick. 9. Dome Wedge. 10, 11, 12, 13. Dome Blocks.

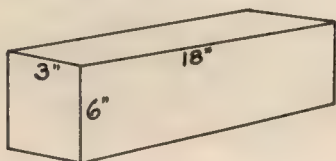
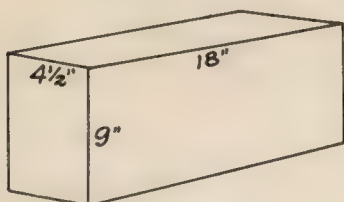
BRIDGE BLOCK  
 $13\frac{1}{2}" \times 6" \times 3"$



SQUARE EDGE TILE  
 $12" \times 12" \times 3"$



STOCK HOLE  
 TILE  
 $18" \times 9" \times 4\frac{1}{2}"$



REGENERATOR TILE  
 $18" \times 6" \times 3"$

$18" \times 9" \times 3"$

$18" \times 9" \times 4"$

$18" \times 12" \times 4"$

$22\frac{1}{2}" \times 6" \times 3"$

$22\frac{1}{2}" \times 9" \times 3"$

$22\frac{1}{2}" \times 9" \times 4"$

$22\frac{1}{2}" \times 12" \times 4"$

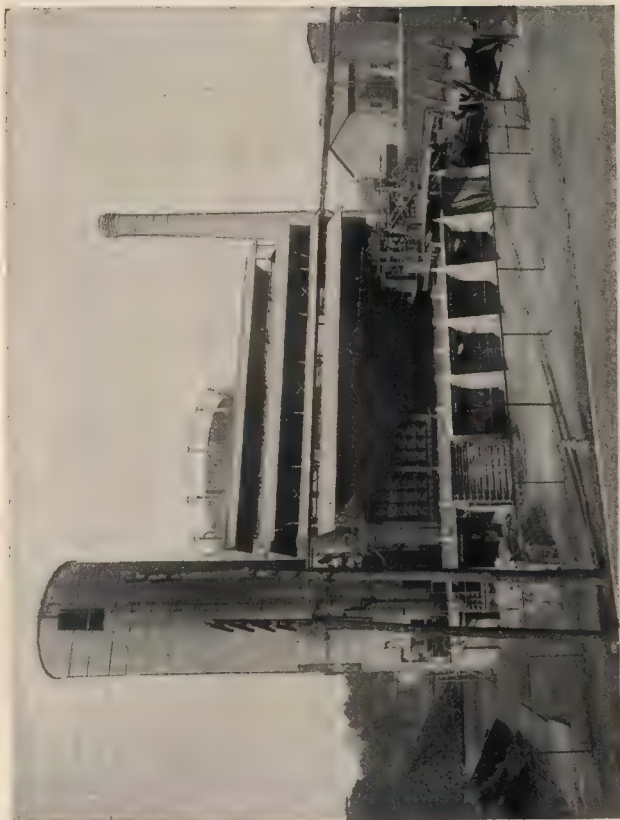
$27" \times 9" \times 3"$

$27" \times 9" \times 4"$

$27" \times 12" \times 4"$

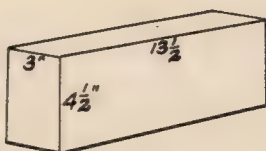
$31\frac{1}{2}" \times 12" \times 4"$

$36" \times 12" \times 4"$

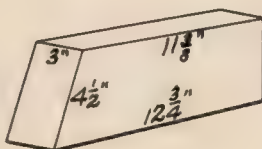


*Battery of Horizontal Coke Ovens Designed and Built  
by The Parker-Russell Company at Kalamazoo, Mich.*

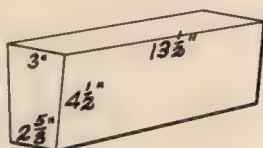
No.101 SQUARE BUNG  
 $13\frac{1}{2} \times 4\frac{1}{2} \times 3$



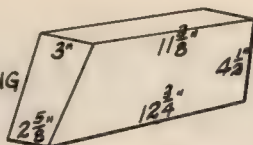
No.102 ANGLE BUNG  
 $(11\frac{3}{8} - 12\frac{3}{4}) \times 4\frac{1}{2} \times 3$



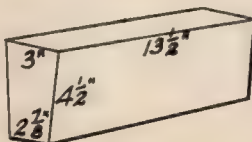
No.103 ARCH BUNG  
 $13\frac{1}{2} \times 4\frac{1}{2} \times (3 - 2\frac{5}{8})$



No.104 ARCH ANGLE BUNG  
 $(11\frac{3}{8} - 12\frac{3}{4}) \times 4\frac{1}{2} \times (3 - 2\frac{5}{8})$



No.105 ARCH BUNG  
 $13\frac{1}{2} \times 4\frac{1}{2} \times (3 - 2\frac{7}{8})$

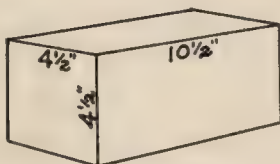






*Typical Enameling Muffle Shapes*

1. Burner Block. 2. Patented Interlocking Muffle Tile. 3. Head Block. 4. Paneled and Studded Patented Interlocking Muffle Tile. 5. Patented Interlocking Muffle Tile. 6. Patented Burning Rack. 7. Paneled Muffle Tile.



OPEN HEARTH CHECKER  
 $10\frac{1}{2}" \times 4\frac{1}{2}" \times 4\frac{1}{2}"$



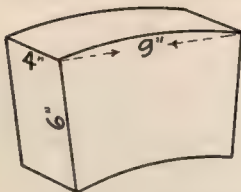
9" ROTARY KILN BLOCKS

No. of Block	DIMENSIONS	DIAMETER		No of Brick To a Circle
		INS.	OUTS.	
9-48	9" x $6\frac{1}{32}"$ x 9" x 4"	48"	66"	23
9-54	9" x $6\frac{3}{4}"$ x 9" x 4"	54"	72"	25
9-60	9" x $6\frac{1}{16}"$ x 9" x 4"	60"	78"	27
9-66	9" x $7\frac{1}{16}"$ x 9" x 4"	66"	84"	29
9-72	9" x $7\frac{3}{16}"$ x 9" x 4"	72"	90"	31
9-78	9" x $7\frac{5}{16}"$ x 9" x 4"	78"	96"	33
9-84	9" x $7\frac{13}{32}"$ x 9" x 4"	84"	102"	36
9-90	9" x $7\frac{1}{2}"$ x 9" x 4"	90"	108"	38
9-96	9" x $7\frac{19}{32}"$ x 9" x 4"	96"	114"	40
9-102	9" x $7\frac{21}{32}"$ x 9" x 4"	102"	120"	42



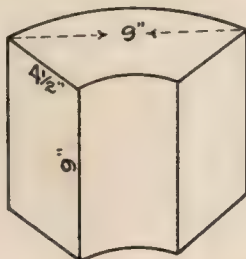
*One of Many Enameling Furnaces Designed  
and Built by The Parker-Russell Company*

## 6" CUPOLA & ROTARY KILN BLOCKS



No. of Block	DIMENSIONS	DIAMETER		No. of BRICK To a Circle
		INS.	OUTS.	
6-30	9" x 6 <sup>7</sup> / <sub>16</sub> " x 6" x 4"	30"	42"	15
6-36	9" x 6 <sup>3</sup> / <sub>4</sub> " x 6" x 4"	36"	48"	17
6-42	9" x 7" x 6" x 4"	42"	54"	19
6-48	9" x 7 <sup>3</sup> / <sub>8</sub> " x 6" x 4"	48"	60"	21
6-54	9" x 7 <sup>3</sup> / <sub>8</sub> " x 6" x 4"	54"	66"	23
6-60	9" x 7 <sup>1</sup> / <sub>2</sub> " x 6" x 4"	60"	72"	25
6-66	9" x 7 <sup>5</sup> / <sub>8</sub> " x 6" x 4"	66"	78"	27
6-72	9" x 7 <sup>23</sup> / <sub>32</sub> " x 6" x 4"	72"	84"	29
6-78	9" x 7 <sup>13</sup> / <sub>16</sub> " x 6" x 4"	78"	90"	31
6-84	9" x 7 <sup>7</sup> / <sub>8</sub> " x 6" x 4"	84"	96"	33
6-90	9" x 7 <sup>15</sup> / <sub>16</sub> " x 6" x 4"	90"	102"	36
6-96	9" x 8" x 6" x 4"	96"	108"	38
6-102	9" x 8 <sup>1</sup> / <sub>16</sub> " x 6" x 4"	102"	114"	40
6-108	9" x 8 <sup>3</sup> / <sub>32</sub> " x 6" x 4"	108"	120"	42

## 9" CUPOLA BLOCKS



No. of Block	DIMENSIONS	DIAMETER		No. of BRICK To a Circle
		INS.	OUTS.	
A	9" x 5 <sup>3</sup> / <sub>4</sub> " x 4 <sup>1</sup> / <sub>2</sub> " x 9"	16"	25"	9
B	9" x 6 <sup>5</sup> / <sub>16</sub> " x 4 <sup>1</sup> / <sub>2</sub> " x 9"	21"	30"	11
C	9" x 6 <sup>3</sup> / <sub>4</sub> " x 4 <sup>1</sup> / <sub>2</sub> " x 9"	27"	36"	13
D	9" x 6 <sup>15</sup> / <sub>16</sub> " x 4 <sup>1</sup> / <sub>2</sub> " x 9"	30"	39"	14
E	9" x 7 <sup>11</sup> / <sub>32</sub> " x 4 <sup>1</sup> / <sub>2</sub> " x 9"	40"	49"	17
F	9" x 7 <sup>21</sup> / <sub>32</sub> " x 4 <sup>1</sup> / <sub>2</sub> " x 9"	51"	60"	21
G	9" x 7 <sup>13</sup> / <sub>16</sub> " x 4 <sup>1</sup> / <sub>2</sub> " x 9"	60"	69"	24
H	9" x 8" x 4 <sup>1</sup> / <sub>2</sub> " x 9"	73"	82"	29



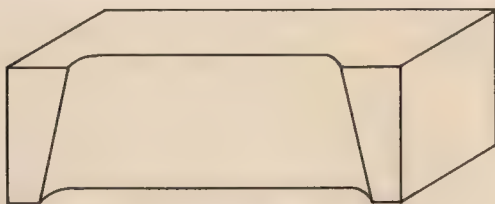
## FOR CUPOLAS

We have developed a Cupola Block, especially suitable for lining the melting zones of cupolas. This material has unusual refractory qualities to withstand the severe slag and clinker action encountered in the melting zones of cupolas.

Special cupola blocks are hand moulded, are well bonded, and are burned unusually hard, therefore are capable of withstanding the abrasive conditions they are subjected to in this practice.

The clays, used in the manufacture of these blocks, are of the best grades found in Missouri, the iron content being exceedingly low. These blocks are giving two to four times the service secured from ordinary high-grade blocks.

We also carry in stock the standard sizes of cupola blocks in our Three Star (★★★) grade. Prices and full particulars on our cupola blocks will be furnished on request.

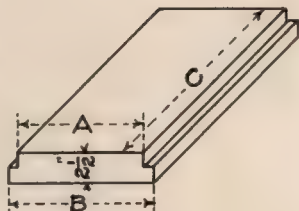


### KILN FLOOR BRICK

WE HAVE MOULDS FOR A NUMBER  
OF SIZES WHICH WE CAN MAKE  
UP ON SHORT NOTICE

A	B	C
11"	12"	18"
11"	12"	20"
11"	12"	22"
11"	12"	24"
11"	12"	26"
11"	12"	28"
11"	12"	30"
11"	12"	32"
11"	12"	34"
14"	15"	24"
14"	15"	26"
14"	15"	28"

### FLANGE BRICK

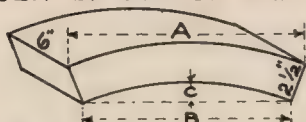




*Typical Vertical Retort Shapes*

1, 2, 3, 4, 5, 6, 7. Retort Sections and Coke Cooling Chamber Sections. 8. One-piece Vertical Recuperator. 9, 10. Vertical Sight Hole Blocks with Threaded Plugs which Screw into the Block.

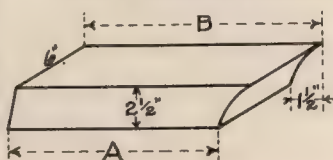
# CENTER BOILER BRICK



SIZE	A	B	C
8"	10"	8"	1/2"
9"	11"	9"	9/16"
10"	12"	10 1/8"	5/8"
12"	14"	12"	3/4"
14"	16"	14"	1"
16"	18 5/8"	16 1/8"	1 1/16"
18"	20 3/8"	18"	2 1/4"
20"	24 1/4"	21 3/4"	3 1/2"

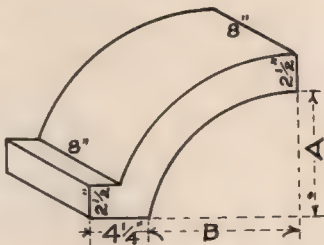
SIZE	A	B
8"	7"	8"
10"	9"	10"
12"	11"	12"
14"	13"	14"
16"	15"	16"

# SIDE BOILER BRICK



19"	9 3/8"	12 3/8"
20"	9 5/8"	13 3/8"
21"	9 3/4"	14 3/8"
22"	9 7/8"	15 3/8"
23"	10 1/8"	16 3/8"
24"	11"	17 3/8"
25"	11 1/8"	18 3/8"
26"	10 1/2"	19 3/8"
27"	10 1/2"	20 1/2"
28"	10 1/2"	21 1/2"
29"	10 1/2"	22 1/2"
30"	10 1/2"	23 1/2"

# BACK BOILER BRICK





## HEAT-RESISTING ALLOYS

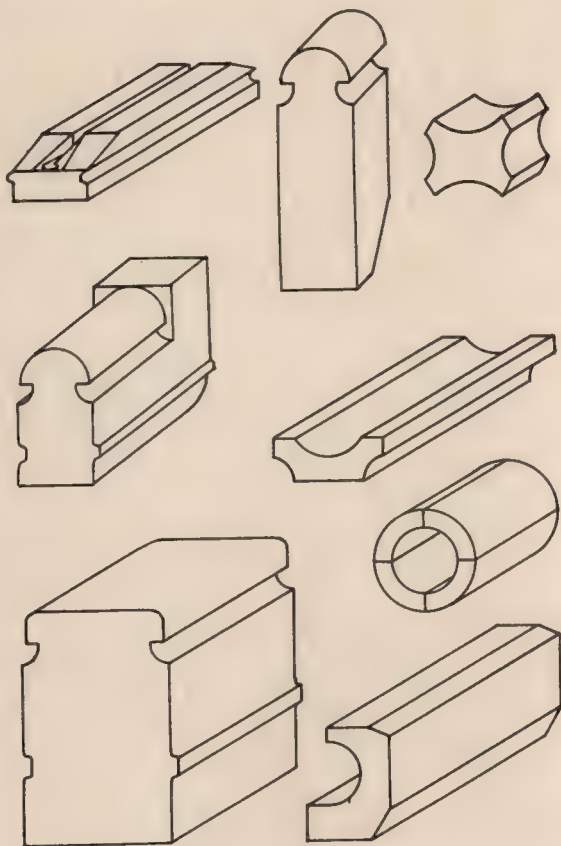
We are agents for the General Alloys Company of Boston, Mass., the largest exclusive manufacturer of heat-resisting castings in the world. These alloys meet a distinct need wherever metal parts are used at temperatures in excess of 1000° F. They will not scale, warp or crack in service; will function mechanically at high temperatures as well as iron and steel at atmospheric temperatures. They will not rust and will resist most acids and gases. The alloys can be supplied as castings, sheets, bars or billets. They can be readily machined, welded, riveted and fabricated.

The material is available in two grades, namely: Q-Alloy for temperatures up to 2200° F. and X-ite up to 1750° F. These alloys are suitable for all kinds of furnace parts, such as rails, hearths, roller and chain conveyors, bearing bars and burning bars. Also as heat-treating containers such as carbonizing boxes, malleable iron annealing boxes, dipping baskets, cyanide lead pots, etc.

The excellent service obtainable from Q-alloy and X-ite is due not only to the character of the material and the care and skill with which it is manufactured, but to the expert engineering experience which is applied to every application.

Tell us your problems and we will gladly advise you what to expect from Q-alloys. If we cannot help you we will say so. If we say we can, we will do it.

## TYPICAL SPECIAL FIRE CLAY SHAPES



## PARKER-RUSSELL CREMATOR

The Parker-Russell Mining & Manufacturing Company specialize in the design and construction of a fully developed retort for the incineration of human remains, adapted for either gas or oil firing.

Cremators can be built in single units or in batteries of two or more individually fired retorts. The flexibility in design readily permits the furnace to be arranged so as to conform with the existing building construction and serve the community as desired.

The essential features of the Parker-Russell Cremator are as follows:

1. A pleasing exterior appearance.
2. Substantial construction of suitable materials.
3. Rapid completion of the incineration process.
4. Economy of fuel consumption.
5. No external evidence of smoke or odor.

The side walls and arch of the interior of retort are constructed of the Hahn Patented Diamond Point Tile, which increases the absorption and radiating surface approximately 55% over flat surface tile. This construction speeds up the initial heating of retort by absorption and accelerates incineration by re-radiation.

The cremation process is further regulated and controlled by use of auxiliary air jets. By proper manipulation of valves, zones or spots of more rapid combustion can be maintained at slower burning portions of body, so as to complete the incineration of all portions in the same period of time.

SEND FOR DESCRIPTIVE BULLETIN

## "PARCO" HIGH TEMPERATURE CEMENTS FOR REAL ECONOMY

"Parco" High Temperature Cements are made in the following forms: "Parco" Wet, a fast-setting mortar; "Parco" Plastic, a patching cement; "Parco" Monolithic and "Parco" Dry.

All of these products are composed of highly refractory clays having a fusion of 3400° F. plus.

"Parco" Wet and "Parco" Dry are high temperature mortars and are composed of very finely ground refractory clays, are fast setting, one being in the "wet" form and the other in the "dry" form, as the names imply. These products can also be used for protective coating over newly constructed brick work by applying as a wash, using a mixture of same in a paste-like form as used for laying up brick. They can also be used with a cement gun.

"Parco" Plastic is a patching cement and is to be used for small patching jobs. This is not intended as a mortar.

"Parco" Monolithic is in a semi-plastic form and can be used wherever monolithic construction is desired. When installing "Parco" Monolithic construction, chunks the size of the fist should be pounded into place with a wooden mallet, care being taken to pound either perpendicular or horizontal to base of wall and not at an angle.

We do not recommend the mixing of any other material with the above products.







Use PARCO *High Alumina* kiln liners in the hot zone of your kilns and avoid *costly interruption* in rotary kiln operation.

PARCO *High Alumina* kiln liners assure continuous and more efficient service.

## FOR ROTARY KILNS

We advocate the use of our "PARCO" Super-Refractory (high alumina) material for the lining of the hot and burning zones of rotary kilns. "PARCO" is especially adapted to meet the most severe conditions that prevail in rotary kilns. "PARCO" will give equally as good results in either wet or dry process plants.

"PARCO" liners are handmade, have smooth surfaces and are uniform in size, which assures a brick-to-brick lining and practically no cutting when laying them up. "PARCO" is unusually hard burned, and is extremely tough and dense, consequently is capable of withstanding the severe abrasive conditions that are encountered in this practice. "PARCO" will take a coating very rapidly, which is essential for long life.

We also furnish our "PARKRUS" and "PARKER-RUSSELL SPECIAL" brands (high alumina) for lining the hot and burning zones of rotary kilns. "PARKRUS" and "PARKER-RUSSELL SPECIAL" are very similar to "PARCO" although they contain a lower percentage of alumina.

Our "Three Star (★★★) Flint" material can also be used for the hot and burning zones of rotary kilns with very good results. "Three Star (★★★) Flint" also serves as an excellent cold zone lining. "Three Star (★★★) Flint" is manufactured from high-grade Missouri clays and is very hard burned, tough and dense.

## FOR GAS MANUFACTURING PLANTS

If you are not obtaining satisfactory service from linings used in the generators of your water gas machines, this can be quickly overcome by the use of our "Parco" super-refractory material. "Parco" is especially adapted to withstand severe conditions. "Parco" will stand up under the most severe clinker conditions, as clinker will not adhere to "Parco" as readily as is the case with ordinary material.

"Parco's" high Alumina content, high fusion point and excellent refractory qualities make it the ideal material for lining the generators of water gas machines. "Parco" is in service in generators of water gas machines in numerous gas plants throughout the United States, Cuba and Canada, and "Parco" has given from three to six times the life of ordinary material.

To insure the best results with "Parco" it is essential that "Parco" lining blocks be laid up with "Parco" mortar, as the "Parco" mortar is made from the same special high-grade material as the "Parco" blocks.

For connections between the generator, carburetor and super-heater, we advocate the use of our special "N. A." (non-abrasive) material, which is giving excellent results. This material is especially adapted to withstand the heavy blasts and abrasive conditions.

For checkering the carburetor and super-heater, we highly recommend our special Gas Checkers. "Gas Checker" brick will not spall

and are capable of resisting oil penetration. They will not absorb carbon readily and will take on and give off heat rapidly which is very essential for successful checkering. The salvage from our "Gas Checkers" is exceptionally high.

We are furnishing our "Parco" generator linings, "N A." special material and "Gas Checker" brick to a large number of representative Gas Companies in the United States and foreign countries, and to the majority of equipment companies that specialize in the design and construction of water gas plants.

We specialize in the manufacture of difficult sleeves, blocks and tiles, for various parts of the water gas machines. Typical complicated water gas shapes that we manufacture are shown elsewhere in this catalog.

We have kept pace with the improvements in the design and construction of water gas sets. We have spent considerable time and money to develop refractories which will meet the more severe requirements which have come about as the result of improvements in water gas design and manufacture.

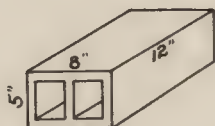
Through our experience as engineers, and contractors for complete coal carbonization plants, we understand thoroughly the conditions in the gas industry. Your inquiries are solicited and we will be glad to assist you in the solution of refractory problems. Our representatives visit gas plants regularly and their services are at your command.



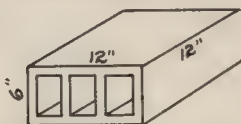
*Typical Horizontal Bench Shapes*

1, 2, 3. Stoppers or Sight Hole Blocks. 4. Retort Head. 5. Recuperator Tile. 6. Firing Block. 7. Scurfing Tile. 8. Patented Primary Air Box. 9. Combustion Chamber Block.





HOLLOW TILE



# **FIRE-PROOFING DEPARTMENT**

WE MANUFACTURE THE USUAL TYPES  
OF FIRE-PROOFING TILE THAT ARE  
NOW BEING USED

WE CARRY IN STOCK THE FOLLOWING SIZES

3" x 12" x 12"

4" x 6" x 12"

4" x 12" x 12"

5" x 4" x 12"

5" x 8" x 12"

5" x 8" x 6"

6" x 12" x 12"

8" x 12" x 12"

WRITE FOR PRICES AND FULL  
PARTICULARS



*Typical P. R. Silica Shapes*

1. Side Skew. 2. Large Square Brick. 3. Retort Section.  
4. Retort Setting Tile. 5. Combustion Block. 6. Retort  
Section. 7. Furnace Arch Block.



*Typical Special Fire Clay Shapes*

- 1, 2, 3, 4. Hot Stove Linings. 5. Car Top Tile. 6. Patented Interlocking Boiler Wall Tile.  
7. Special Block for Vertical Gas Retorts.

## GENERAL INFORMATION ABOUT FIRE BRICK

Moisture, especially in cold weather, will greatly injure any fire brick. Exposure to weather causes fire brick to rapidly deteriorate and the use of fire brick which have been thus exposed is the cause of many failures.

To obtain the best results from fire-brickwork, observe the following precautions:

Use good fire clay equal in refractoriness to the brick itself, mixing with water to thin paste. Dip brick and rub to make a brick-to-brick joint.

Warm slowly to expel moisture.

From 400 to 600 pounds of "Parco" Cement is enough to lay one thousand brick.

For estimating on fire-brickwork, use the following figures:

1 square foot  $4\frac{1}{2}$ -inch wall requires 7 nine-inch straight brick.

1 square foot 9-inch wall requires 14 brick.

1 square foot  $13\frac{1}{2}$ -inch wall requires 21 brick.

1 cubic foot of fire-brickwork requires 17 brick.

1 cubic foot of fire-brickwork weighs 125 to 140 pounds.

1,000 brick (closely stacked) occupy 56 cubic feet.

1,000 brick (loosely stacked) occupy 72 cubic feet.

# TABLE OF 9-INCH ARCH BRICK

Inside Diameter	Shapes Required				Total
	No. 3 Arch	No. 2 Arch	No. 1 Arch	Straight	
0 ft. 6 in.	19				19
1 " 0 "	12	15			27
1 " 6 "	4	30			34
1 " 9 "		38			38
2 " 0 "		34	8		42
2 " 6 "		26	23		49
3 " 0 "		19	38		57
3 " 6 "		11	53		64
4 " 0 "		4	68		72
4 " 3 "			76		76
4 " 6 "			76	4	80
5 " 0 "			76	11	87
5 " 6 "			76	19	95
6 " 0 "			76	27	103
6 " 6 "			76	34	110
7 " 0 "			76	42	118
7 " 6 "			76	49	125
8 " 0 "			76	57	133
8 " 6 "			76	64	140
9 " 0 "			76	72	148
9 " 6 "			76	79	155
10 " 0 "			76	87	163
10 " 6 "			76	94	170
11 " 0 "			76	102	178
11 " 6 "			76	109	185
12 " 0 "			76	117	193

# TABLE OF 9-INCH WEDGE BRICK

Inside Diameter	Shapes Required			Total
	No. 2 Wedge	No. 1 Wedge	Straight	
2 ft. 3 in.	57			57
2 " 6 "	49	11		60
3 " 0 "	38	30		68
3 " 6 "	26	50		76
4 " 0 "	12	71		83
4 " 6 "		91		91
5 " 0 "		91	8	99
5 " 6 "		91	15	106
6 " 0 "		91	23	114
6 " 6 "		91	30	121
7 " 0 "		91	38	129
7 " 6 "		91	45	136
8 " 0 "		91	53	144
8 " 6 "		91	60	151
9 " 0 "		91	68	159
9 " 6 "		91	76	167
10 " 0 "		91	83	174
10 " 6 "		91	91	182
11 " 0 "		91	98	189
11 " 6 "		91	106	197
12 " 0 "		91	113	204
12 " 6 "		91	121	212



TABLE OF 9-INCH WEDGE BRICK

Inside Diameter	Shapes Required (Continued.)			
	No. 2 Wedge	No. 1 Wedge	Straight	Total
13 ft. 0 in.	.....	91	128	219
13 " 6 "	.....	91	136	227
14 " 0 "	.....	91	143	234
14 " 6 "	.....	91	151	242
15 " 0 "	.....	91	158	249
15 " 6 "	.....	91	166	257
16 " 0 "	.....	91	173	264
16 " 6 "	.....	91	181	272
17 " 0 "	.....	91	188	279
17 " 6 "	.....	91	196	287
18 " 0 "	.....	91	203	294
18 " 6 "	.....	91	211	302
19 " 0 "	.....	91	218	309
19 " 6 "	.....	91	226	317
20 " 0 "	.....	91	233	324
20 " 6 "	.....	91	241	332
21 " 0 "	.....	91	248	339
21 " 6 "	.....	91	256	347
22 " 0 "	.....	91	263	354
22 " 6 "	.....	91	271	362
23 " 0 "	.....	91	278	369
23 " 6 "	.....	91	286	377
24 " 0 "	.....	91	293	384
24 " 6 "	.....	91	301	392
25 " 0 "	.....	91	308	399
25 " 6 "	.....	91	316	407
26 " 0 "	.....	91	323	414
26 " 6 "	.....	91	331	422
27 " 0 "	.....	91	338	429
27 " 6 "	.....	91	346	437

TABLE OF 9-INCH KEY BRICK

Inside Diameter	Shapes Required				
	No. 4 Key	No. 3 Key	No. 2 Key	No. 1 Key	Straight
1 ft. 6 in.	25	.....	.....	.....	25
2 " 0 "	16	13	.....	.....	29
2 " 6 "	9	25	.....	.....	34
3 " 0 "	.....	38	.....	.....	38
3 " 6 "	.....	29	13	.....	42
4 " 0 "	.....	21	25	.....	46
4 " 6 "	.....	12	38	.....	50
5 " 0 "	.....	5	50	.....	55
5 " 6 "	.....	.....	57	.....	57
6 " 0 "	.....	.....	55	4	59
6 " 6 "	.....	.....	50	13	63
7 " 0 "	.....	.....	46	21	67
7 " 6 "	.....	.....	42	29	71
8 " 0 "	.....	.....	38	38	76
8 " 6 "	.....	.....	34	46	80
9 " 0 "	.....	.....	29	55	84
9 " 6 "	.....	.....	25	63	88
9 " 6 "	.....	.....	21	71	92

# TABLE OF 9-INCH KEY BRICK

Inside Diameter	Shapes Required				(Continued.)	
	No. 4 Key	No. 3 Key	No. 2 Key	No. 1 Key	Straight	Total
10 ft. 0 in.			17	80		97
10 " 6 "			13	88		101
11 " 0 "			9	96		105
11 " 6 "			4	105		109
12 " 0 "				113		113
12 " 6 "				113	4	117
13 " 0 "				113	9	122
13 " 6 "				113	13	126
14 " 0 "				113	17	130
14 " 6 "				113	21	134
15 " 0 "				113	25	138
15 " 6 "				113	30	143
16 " 0 "				113	34	147
16 " 6 "				113	38	151
17 " 0 "				113	42	155
17 " 6 "				113	46	159
18 " 0 "				113	50	163
18 " 6 "				113	55	168
19 " 0 "				113	59	172
19 " 6 "				113	63	176
20 " 0 "				113	67	180
20 " 6 "				113	71	184
21 " 0 "				113	76	189
21 " 6 "				113	80	193
22 " 0 "				113	84	197
22 " 6 "				113	88	201
23 " 0 "				113	92	205
23 " 6 "				113	97	210
24 " 0 "				113	101	214
24 " 6 "				113	105	218
25 " 0 "				113	109	222
25 " 6 "				113	113	226
26 " 0 "				113	117	230
26 " 6 "				113	122	235
27 " 0 "				113	126	239
27 " 6 "				113	130	243
28 " 0 "				113	134	247
28 " 6 "				113	138	251
29 " 0 "				113	143	256
29 " 6 "				113	147	260
30 " 0 "				113	151	264
30 " 6 "				113	155	268
31 " 0 "				113	159	272
31 " 6 "				113	163	276
32 " 0 "				113	168	281
32 " 6 "				113	172	285
33 " 0 "				113	176	289
33 " 6 "				113	180	293
34 " 0 "				113	184	297
34 " 6 "				113	189	302
35 " 0 "				113	193	306

TABLE OF 9x6x3-INCH KEY BRICK

Inside Diameter	Shapes Required			
	No. 2 Key 9x(6-4 $\frac{1}{8}$ )x3	No. 1 Key 9x(6-5 $\frac{3}{8}$ )x3	Squares	Total
6 ft. 0 in.	47			47
6 " 6 "	44	6		50
7 " 0 "	42	12		54
7 " 6 "	38	19		57
8 " 0 "	34	26		60
8 " 6 "	31	32		63
9 " 0 "	27	39		66
9 " 6 "	23	46		69
10 " 0 "	20	52		72
10 " 6 "	16	59		75
11 " 0 "	13	66		79
11 " 6 "	10	72		82
12 " 0 "	6	79		85
12 " 6 "	3	85		88
13 " 0 "		91		91
13 " 6 "		91	3	94
14 " 0 "		91	6	97
14 " 6 "		91	10	101
15 " 0 "		91	13	104
15 " 6 "		91	16	107
16 " 0 "		91	19	110

16 ft. 6 in.		91	22	113
17 " 0 "		91	25	116
17 " 6 "		91	28	119
18 " 0 "		91	32	123
18 " 6 "		91	35	126
19 " 0 "		91	38	129
19 " 6 "		91	41	132
20 " 0 "		91	44	135
20 " 6 "		91	47	138
21 " 0 "		91	50	141
21 " 6 "		91	54	145
22 " 0 "		91	57	148
22 " 6 "		91	60	151
23 " 0 "		91	63	154
23 " 6 "		91	66	157
24 " 0 "		91	69	160
24 " 6 "		91	72	163
25 " 0 "		91	76	167
25 " 6 "		91	79	170
26 " 0 "		91	82	173
26 " 6 "		91	85	176
27 " 0 "		91	88	179
27 " 6 "		91	91	182
28 " 0 "		91	94	185
28 " 6 "		91	98	189
29 " 0 "		91	101	192
29 " 6 "		91	104	195
30 " 0 "		91	107	198

TABLE OF 13½"-INCH KEY BRICK

Inside Diameter	Shapes Required			
	No. 2 Key	No. 1 Key	Straight	Total
6 ft. 0 in.	52			52
6 " 6 "	48	7		55
7 " 0 "	42	16		58
7 " 6 "	37	24		61
8 " 0 "	33	32		65
8 " 6 "	28	40		68
9 " 0 "	23	48		71
9 " 6 "	18	56		74
10 " 0 "	12	65		77
10 " 6 "	7	73		80
11 " 0 "	2	81		83
11 " 3 "		85		85
11 " 6 "		85	2	87
12 " 0 "		85	5	90
12 " 6 "		85	8	93
13 " 0 "		85	11	96
13 " 6 "		85	14	99
14 " 0 "		85	17	102
14 " 6 "		85	21	106
15 " 0 "		85	24	109
15 " 6 "		85	27	112
16 " 0 "		85	30	115
16 " 6 "		85	33	118
17 " 0 "		85	36	121
17 " 6 "		85	39	124
18 " 0 "		85	43	128
18 " 6 "		85	46	131
19 " 0 "		85	49	134
19 " 6 "		85	52	137
20 " 0 "		85	55	140
20 " 6 "		85	58	143
21 " 0 "		85	61	146
21 " 6 "		85	65	150
22 " 0 "		85	68	153
22 " 6 "		85	71	156
23 " 0 "		85	74	159
23 " 6 "		85	77	162
24 " 0 "		85	80	165
24 " 6 "		85	83	168
25 " 0 "		85	87	172
25 " 6 "		85	90	175
26 " 0 "		85	93	178
26 " 6 "		85	96	181
27 " 0 "		85	99	184
27 " 6 "		85	102	187
28 " 0 "		85	105	190
28 " 6 "		85	109	194
29 " 0 "		85	112	197
29 " 6 "		85	115	200
30 " 0 "		85	118	203
30 " 6 "		85	121	206
31 " 0 "		85	124	209
31 " 6 "		85	127	212
32 " 0 "		85	131	216
32 " 6 "		85	134	219

TABLE OF 13½"-INCH KEY BRICK

Inside Diameter	Shapes Required (Continued.)			
	No. 2 Key	No. 1 Key	Straight	Total
33 ft. 0 in.	.....	85	137	222
33 " 6 "	.....	85	140	225
34 " 0 "	.....	85	143	228
34 " 6 "	.....	85	146	231
35 " 0 "	.....	85	149	234

TABLE OF STANDARD 9" CIRCLE BRICK

Inside Diameter	Shapes Required					
	24-inch Circle	36-inch Circle	48-inch Circle	60-inch Circle	72-inch Circle	84-inch Circle
2 ft. 0 in.	12	.....	.....	.....	.....	.....
2 " 3 "	9	4	.....	.....	.....	.....
2 " 6 "	6	8	.....	.....	.....	.....
2 " 9 "	3	12	.....	.....	.....	.....
3 " 0 "	.....	16	.....	.....	.....	.....
3 " 3 "	.....	11	6	.....	.....	.....
3 " 6 "	.....	7	11	.....	.....	.....
3 " 9 "	.....	3	16	.....	.....	.....
4 " 0 "	.....	.....	20	.....	.....	.....
4 " 3 "	.....	.....	14	7	.....	.....
4 " 6 "	.....	.....	9	13	.....	.....
4 " 9 "	.....	.....	4	19	.....	.....
5 " 0 "	.....	.....	.....	24	.....	.....
5 " 3 "	.....	.....	.....	17	8	.....
5 " 6 "	.....	.....	.....	11	15	.....
5 " 9 "	.....	.....	.....	5	22	.....
6 " 0 "	.....	.....	.....	.....	28	.....
6 " 3 "	.....	.....	.....	.....	21	8
6 " 6 "	.....	.....	.....	.....	14	16
6 " 9 "	.....	.....	.....	.....	7	24
7 " 0 "	.....	.....	.....	.....	.....	32



TABLE OF 13½" WEDGE BRICK

Inside Diameter	Shapes Required				Total
	No. 3 Wedge 13½" x 6" x 3" x 2"	No. 2 Wedge 13½" x 6" x 3" x 2½"	No. 1 Wedge 13½" x 6" x 3" x 2¾"	Straight 13½" x 6" x 3"	
4 ft. 6 in.	85				85
5 " 0 "	79	13			92
5 " 6 "	73	25			98
6 " 0 "	66	38			104
6 " 6 "	60	50			110
7 " 0 "	54	63			117
7 " 6 "	47	76			123
8 " 0 "	41	88			129
8 " 6 "	35	101			136
9 " 0 "	29	113			142
9 " 6 "	22	126			148
10 " 0 "	16	138			154
10 " 6 "	10	151			161
11 " 0 "	3	164			167
11 " 3 "		170			170
11 " 6 "		167	6		173
12 " 0 "		160	19		179
12 " 6 "		154	32		186
13 " 0 "		148	44		192
13 " 6 "		141	57		198
14 " 0 "		135	69		204
14 " 6 "		129	82		211
15 " 0 "		123	94		217
15 " 6 "		116	107		223
16 " 0 "		110	120		230
16 " 6 "		104	132		236
17 " 0 "		97	145		242
17 " 6 "		91	157		248
18 " 0 "		85	170		255
18 " 6 "		79	182		261
19 " 0 "		72	195		267
19 " 6 "		66	208		274
20 " 0 "		60	220		280
20 " 6 "		54	232		286
21 " 0 "		47	245		292
21 " 6 "		41	258		299
22 " 0 "		35	270		305
22 " 6 "		28	283		311
23 " 0 "		22	295		317
23 " 6 "		16	308		324
24 " 0 "		10	320		330
24 " 6 "		4	333		337
24 " 9 "			340		340
25 " 0 "			340	3	343
25 " 6 "			340	9	349

# TABLE OF 13½" WEDGE BRICK

Inside Diameter	Shapes Required (Continued.)				Total
	No. 3 Wedge 13½" x 6" x 3" x 2"	No. 2 Wedge 13½" x 6" x 3" x 2½"	No. 1 Wedge 13½" x 6" x 3" x 2¾"	Straight 13½" x 6" x 3"	
26 ft. 0 in.			340	15	355
26 " 6 "			340	22	362
27 " 0 "			340	28	368
27 " 6 "			340	35	375
28 " 0 "			340	41	381
28 " 6 "			340	47	387
29 " 0 "			340	53	393
29 " 6 "			340	60	400
30 " 0 "			340	66	406
30 " 6 "			340	72	412
31 " 0 "			340	79	419
31 " 6 "			340	85	425
32 " 0 "			340	91	431
32 " 6 "			340	97	437
33 " 0 "			340	104	444
33 " 6 "			340	110	450
34 " 0 "			340	116	456
34 " 6 "			340	122	462
35 " 0 "			340	129	469
35 " 6 "			340	135	475
36 " 0 "			340	141	481
36 " 6 "			340	147	487
37 " 0 "			340	154	494
37 " 6 "			340	160	500
38 " 0 "			340	167	507
38 " 6 "			340	173	513
39 " 0 "			340	179	519
39 " 6 "			340	185	525
40 " 0 "			340	192	532
40 " 6 "			340	198	538
41 " 0 "			340	204	544
41 " 6 "			340	211	551
42 " 0 "			340	217	557
42 " 6 "			340	223	563
43 " 0 "			340	229	569
43 " 6 "			340	236	576
44 " 0 "			340	242	582
44 " 6 "			340	248	588
45 " 0 "			340	255	595
45 " 6 "			340	261	601
46 " 0 "			340	267	607
46 " 6 "			340	273	613
47 " 0 "			340	280	620
47 " 6 "			340	286	626
48 " 0 "			340	292	632

# TABLE OF 6" CUPOLA BLOCKS

Inside Diameter Cupola Lining	Shapes Required							
	30 in.	36 in.	42 in.	48 in.	54 in.	60 in.	66 in.	72 in.
2 ft. 6 in.	15							
2 " 9 "	8	8						
3 " 0 "		17						
3 " 3 "		9	9					
3 " 6 "			19					
3 " 9 "			9	11				
4 " 0 "				21				
4 " 3 "				10	12			
4 " 6 "					23			
4 " 9 "					12	12		
5 " 0 "						25		
5 " 3 "						13	13	
5 " 6 "							27	
5 " 9 "							15	13
6 " 0 "								29

Inside Diameter Cupola Lining	Shapes Required							
	66 in.	72 in.	78 in.	84 in.	90 in.	96 in.	102in.	108in.
6 ft. 3 in.		17	13					
6 " 6 "			31					
6 " 9 "			18	14				
7 " 0 "				33				
7 " 3 "				16	19			
7 " 6 "					36			
7 " 9 "					17	20		
8 " 0 "						38		
8 " 3 "						22	17	
8 " 6 "							40	
8 " 9 "							22	19
9 " 0 "								42

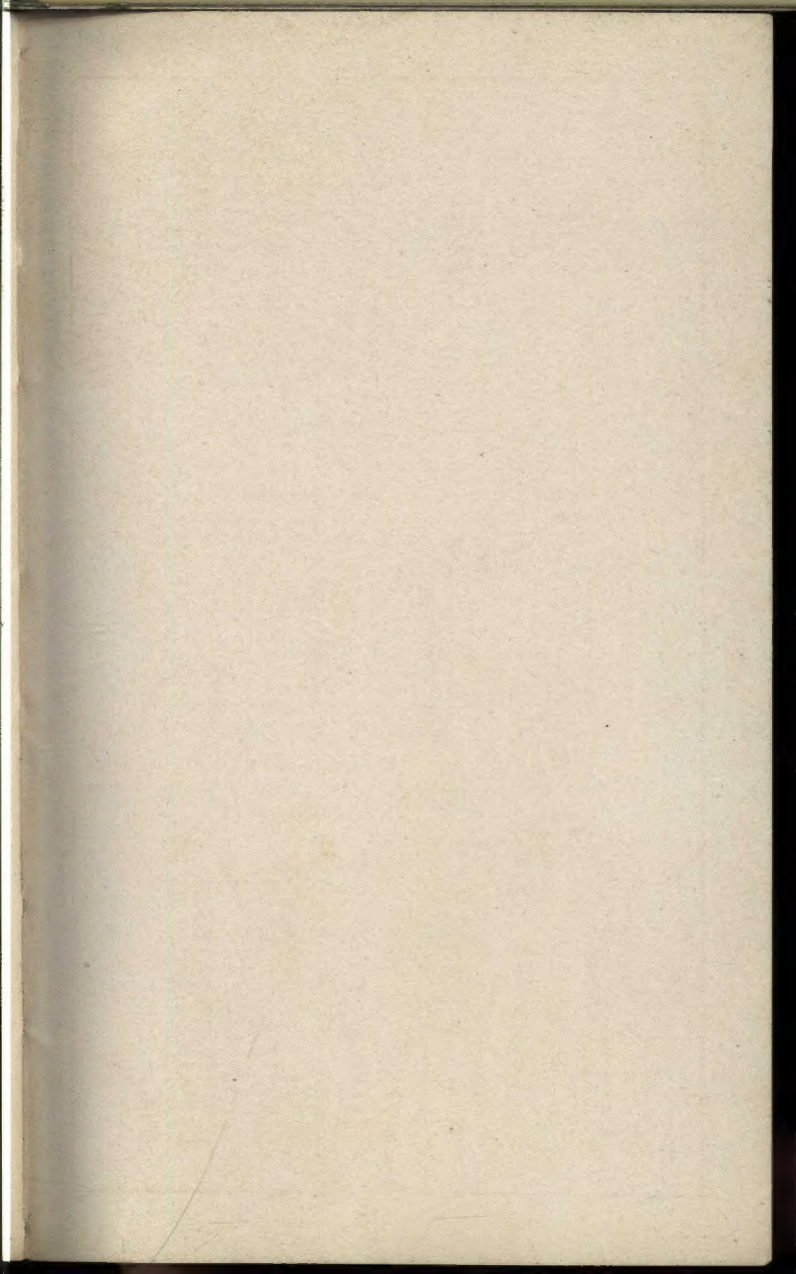
## 9" ROTARY KILN BLOCKS

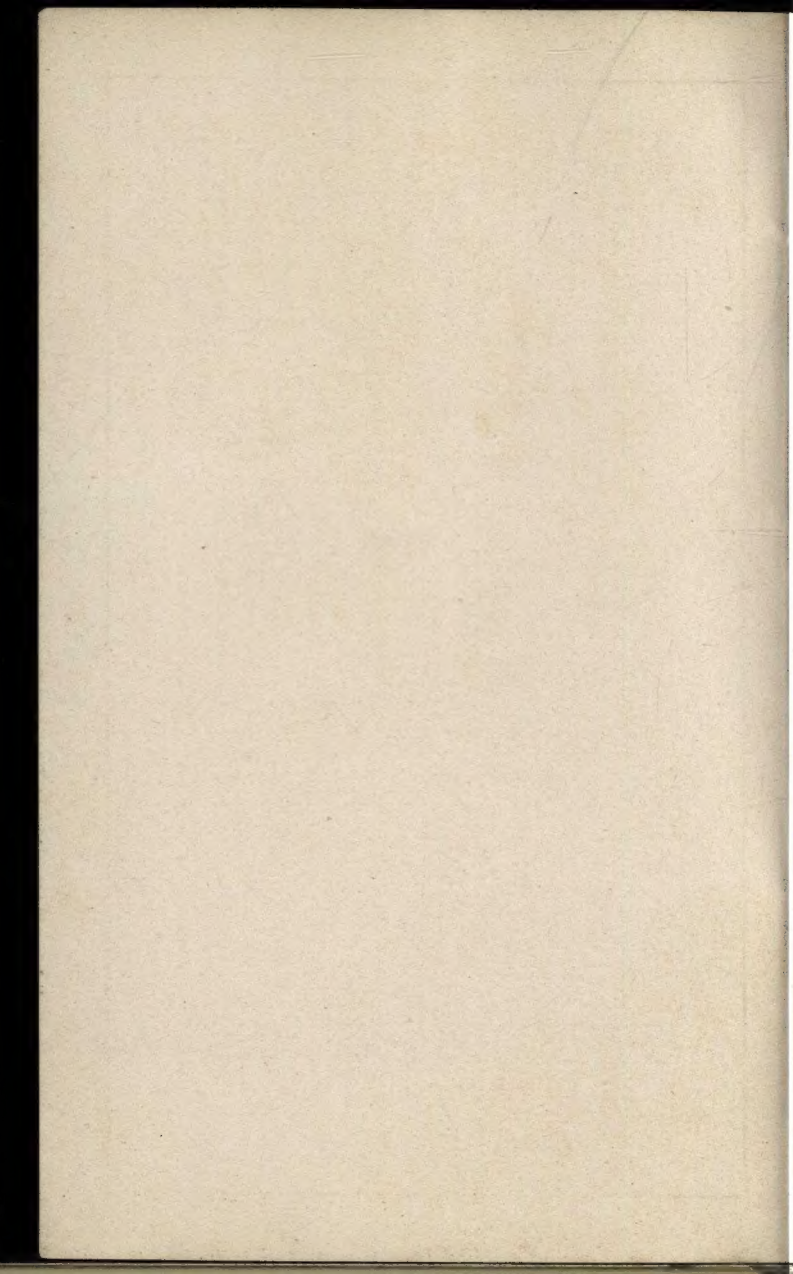
Inside Diameter Lining	Shapes Required					
	48 in.	54 in.	60 in.	66 in.	72 in.	84 in.
4 ft. 0 in.	23					
4 " 3 "	12	12				
4 " 6 "		25				
4 " 9 "		13	13			
5 " 0 "			27			
5 " 3 "			15	13		
5 " 6 "				29		
5 " 9 "				17	13	
6 " 0 "					31	
6 " 3 "					18	14

Inside Diameter Lining	Shapes Required					
	72 in.	78 in.	84 in.	90 in.	96 in.	102 in.
6 ft. 6 in.		33				
6 " 9 "		16	19			
7 " 0 "			36			
7 " 3 "			17	20		
7 " 6 "				38		
7 " 9 "				22	17	
8 " 0 "					40	
8 " 3 "					22	19
8 " 6 "						42

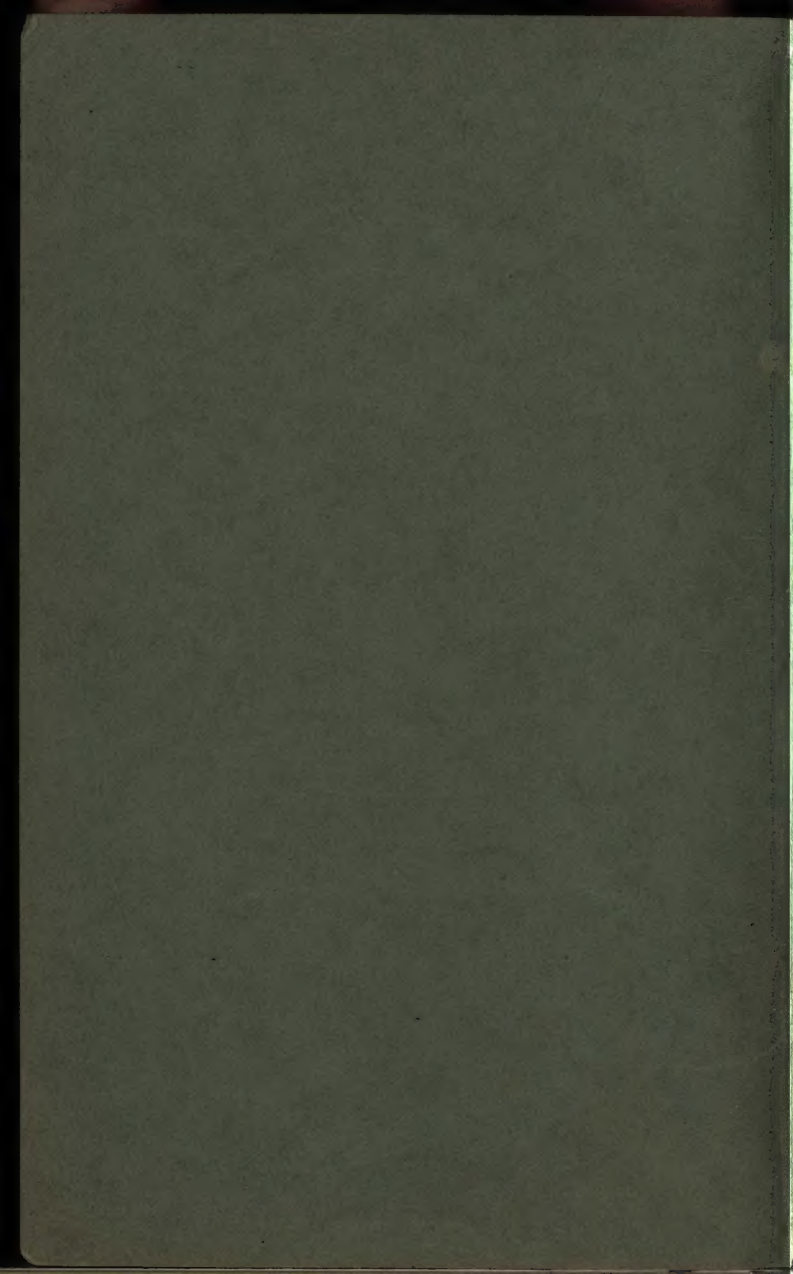
## TABLE OF 9" CUPOLA BLOCKS

Inside Diameter Cupola Lining	Shapes Required							
	A	B	C	D	E	F	G	H
1 ft 4 in.	9							
1 " 6 "	6	4						
1 " 9 "		11						
2 " 0 "		6	6					
2 " 3 "			13					
2 " 6 "				14				
3 " 0 "				6	10			
3 " 4 "					17			
3 " 6 "					14	4		
4 " 0 "					5	15		
4 " 3 "						21		
4 " 6 "						20	2	
5 " 0 "							24	
5 " 6 "							13	13
6 " 0 "							2	27
6 " 1 "								29









# PARADE